Transparent Ethernet Data Gateway: Bring Your Device to the eWorld

Introduction

As the world becomes more and more digital, it is critical to keep all necessary devices efficiently managed and communicated. Advantech's newest family, multi-port Ethernet Data Gateway, is designed to serve as a bridge between RS-232/422/485 and Ethernet. They can immediately upgrade your existing devices for the Ethernet-ready world.

The Ethernet Data Gateway family integrates both your existing human-machine interface software (HMI) and the RS-232/422/485 system architecture with an Ethernet network. The result saves cabling space and software development cost. In addition, the Ethernet Data Gateway allows users to remotely download programs to a designated device via Ethernet. This reduces the need for on-site maintenance and diagnosis. Functionally transparent and efficient, the Ethernet Data Gateway is specially suited for remotely controlling and monitoring devices via the Internet.

Communication redundancy empowers the reliability of systems (ADAM-4570S)

To enhance the reliability of systems, the ADAM-4570S provides two communication redundant functions: Host idle & device idle. For enabling the "Host idle", if the communication between host PC and ADAM-4570S fails, the other PC can take place to access the same ADAM-4570S automatically. This prevents the system from crashing by failed communications. For enabling "Device idle", if the communication between device and ADAM-4570S fails, the ADAM-4570S will switch one port to another port automatically. This makes the system more reliable.

Advanced multiple securities to protect system and private data

The ADAM-4570S/4571S guards your system and data from being tapped by utlizing multiple security protections: T-DES (Triple Data Encryption Standard); IP address control and configuration. By using T-DES, you can key-in a password to secure your data. The data can be sent to the specific host PC only if the PC and ADAM-4570S/4571S have the password. It prevents important data from being viewed by an unauthorized user. The IP address control allows users to block access to a specific ADAM-4570; it restricts the access right to up to 32 PCs at a time. In addition, the ADAM-4570S/4571S protects all configuration settings from being changed inadvertently. When this option is enabled, only the corresponding PC can set or change the configuration.

Information integration using Ethernet

In the past, on-site production data has usually been dispersed among many different computers; a considerable investment in facilities, manpower and time is needed to integrate this scattered data. Furthermore, serious losses can be suffered because of the impossibility of incorporating real-time production data in business-level data. In the future, the trend will be towards integrating production data and business data on the Ethernet. This can permit considerable savings in manpower and money. Advantech Ethernet Data Gateway family is specially designed for transmitting data from existing RS-232/422/485 to Ethernet. Then, users can integrate the data easily.

Control & monitor on-site devices remotely

By using Ethernet Data Gateway, users can transfer files, commands to control or monitor on-site devices on remote computers. Thus, users don't need to go in person to the site to perform maintenance or diagnosis. This permits a big reduction in maintenance costs.

Transparent Ethernet Data Gateway: Bring Your Device to the eWorld

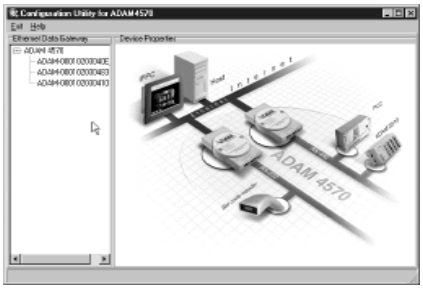
Configuration utility-Auto detecting Port Mapping utility-self diagnostic Flexibility and Scalability

In the traditional industrial environment, because of the restrictions affecting RS-232/422/485, serial devices had to be controlled or monitored by a nearby host PC; integration then had to be performed between the host PCs. This excessive dispersal of data made it difficult to perform data integration. Today, with the introduction of the Ethernet Data Gateway family, the user can simultaneously control and monitor many different types of remote and nearby serial devices using just one PC. Not only does this save on costs, it also makes it easy to make decisions rapidly. For example, each PC running Windows NT can control up to 255 real COM ports, and each COM port can be connected to many different serial devices, thereby increasing the benefits to the company.

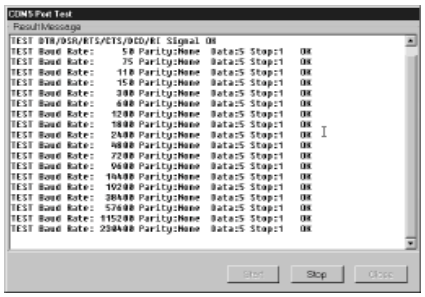
Cost-effective network solution

The Ethernet Data Gateway family immediately upgrades your existing devices for the Ethernet. It's no longer necessary to change your S/W and H/W. Therefore, Ethernet Data Gateway family is not only protecting your current hardware investment but also ensuring future network expandability. Unlike traditional multi-port slot boards, the standalone Advantech Ethernet Data Gateway family operates independently on the local area network (LAN). It does not require a PC host's slot, IRQ or memory resources. There is no longer the need to keep and maintain an extra PC for added serial devices or upgraded performance. When additional devices are required, the standalone Advantech Slim Server solutions attach to the Ethernet network, saving you time and money by being a total solutions system.

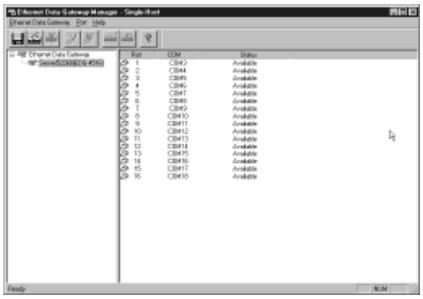
Configuration utility-Auto detecting



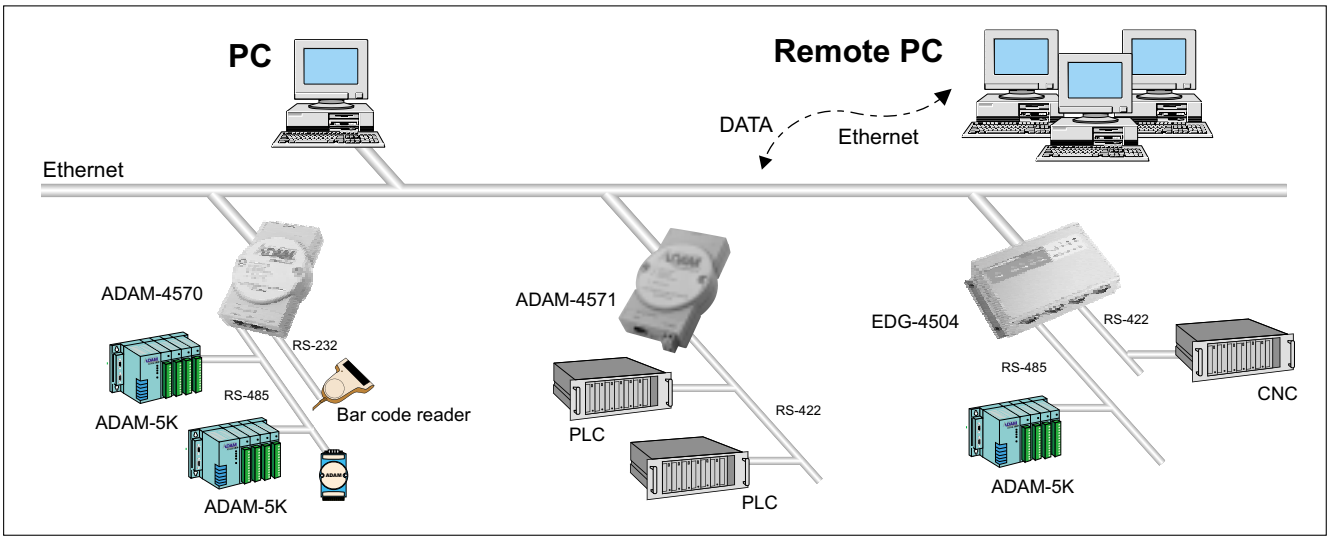
Port Mapping utility-self diagnostic



Configuration utility-single host



System Architecture



ADAM-4570
ADAM-4571

2-port Ethernet to RS-232/422/485 Data Gateway
1-port Ethernet to RS-232/422/485 Data Gateway

Features

- Supports 10/100Base-T standard
- Supports high transmission speeds up to 230 Kbps
- Supports an advanced security mechanism to avoid unauthorized access
- Auto-reconnect or return error when Network breaks
- Remote download firmware: Easy to maintain
- Auto-detecting Configuration Utility
- Easy managing Port Mapping Utility
- Supports Windows® 95/98/NT/2000/XP/ME driver
- Surge protection for RS-485 line and power supply
- Automatic RS-485 data flow control

Introduction

The ADAM-4570/4571 is a lightning fast and cost effective data gateway between RS-232/422/485 and Ethernet interfaces. This unit immediately upgrades your existing device(s) to the Ethernet world. Functionally transparent and efficient, the ADAM-4570/4571 is specially designed for remotely controlling and monitoring devices via the Internet.

The ADAM-4570/4571 provides one or two RS-232/485/422 serial ports that can each be easily configured for your needs. For increasing the reliability of systems, the ADAM-4570 also provides a significant function: communication redundancy. The ADAM-4570/4571 also supports transmission speeds up to 230 Kbps, meeting the demand for today's high-speed exchange. Users can use a Windows utility to configure the ADAM-4570/4571 without need for further programming. The ADAM-4570/4571 not only protects your current hardware investment but also ensures future network expandability. Since the protocol conversion is transparent, all existing devices can be seamlessly integrated into the Ethernet network. Therefore, the ADAM-4570/4571 can be used in security systems, factory automation, SCADA, transportation and more.

The ADAM-4570/4571 integrates both your existing human-machine interface software (HMI) and RS-232/422/485 system architecture with an Ethernet network. The result helps save cabling space and software development cost. The ADAM-4570/4571 also provides a high-performance RISC CPU and real time operating system to reduce CPU load. These components make the ADAM-4570/4571 more stable and reliable. Another benefit is the ADAM-4570/4571 allows users to remotely download programs to a designated device via Ethernet.

This reduces the need for on-site maintenance and diagnosis. In addition, the ADAM-4570/4571 comes with a Windows configuration and port-mapping utility. This configuration tool can auto-detect all Ethernet Data Gateway products on a local network. It also lets users easily adjust all settings. The port mapping utility helps to set up COM ports for one Windows 95/98/NT/2000/XP platform. This helps users manage all ports to meet their needs.

Specifications

- **Protocol:** TCP/IP,
- **Network:** 10/100Base-T standard
- **Port:** 1/2 Independent RS-232/422/485 ports
- **Connector:**
  Network: RJ-45
  Serial: RJ-48 (RJ-48 to DB-9 cable provided)
- **Transmission speed:** 300 bps to 230 Kbps
- **Parity bit:** odd, even, none, space, mark
- **Data bit:** 5, 6, 7, 8
- **Stop bit:** 1, 1.5, 2
- **Diagnostic LEDs:**
  Network: Tx/Rx, Link , Speed (10/100 Mbps), Power
  Serial: Tx/Rx, Status
- **Surge protection:** 15 K V_{ESD} (RS-232/422/485)
- **Utility Software:**
  Auto-detecting configuration utility
  Easy-to-manage port mapping utility
- **Driver Supported:** Windows® 95/98/NT/2000/XP
- **Power Requirements:** unregulated 10 to 30 V_{DC}
- **Power Consumption:** 4 watt
- **Mounting:** DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** 0 to 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 to 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

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Auto-reconnect after networking breaks

Sometimes, the system crashes because the ADAM-4570 is interrupted or powered-off by accident. The ADAM-4570 provides an "Auto-reconnect" function to solve this problem. When the ADAM-4570 is powered-off accidentally, the driver will keep trying to reconnect the ADAM-4570 automatically. When the ADAM-4570 recovers or is powered-on, due to this auto-reconnect function, the host PC can send commands to the ADAM-4570 again. This function enhances the reliability of the system.

Auto-detect Ethernet Data Gateway products

The configuration utility can search all the Ethernet Data Gateway devices on the network automatically and configure them according to the current network status, saving your effort to acquire the status information yourself.

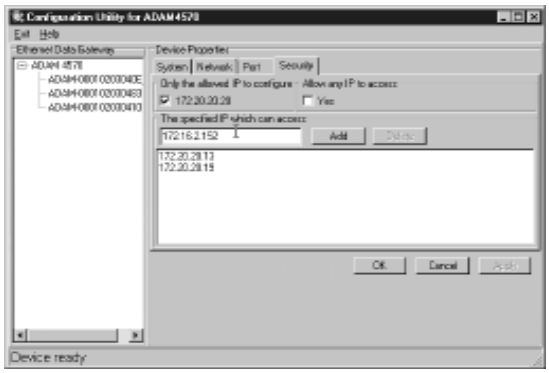
Easy to diagnose the communication situation

If this test item is selected, an internal test will be done on the RS-232 serial port, and the result (successful or failed) will be displayed when the test is completed. If this test item is selected, an external test will also be done to check that the connection signals for each port are working properly. For the external test, you will need to connect each port to a loopback tester. The test is divided into two parts: Signal test and Communication Parameters test. If the results are OK, users can be sure the communication quality between host PC and ADAM-4570/4571 is OK.

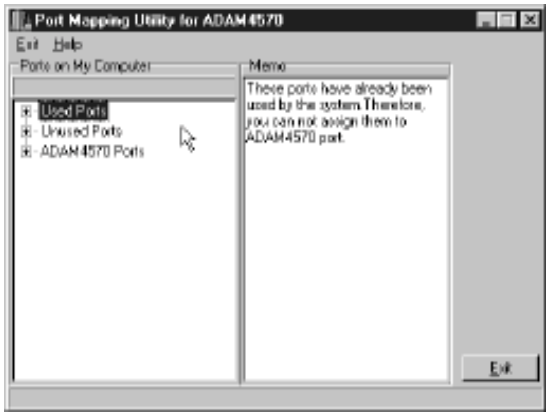
Easy to maintain by downloading firmware remotely

Advantech continually upgrades ADAM-4570/4571's firmware to keep pace with the ever-expanding world of computing. You can use the Download function located on the Port Mapping utility to carry out the upgrade procedure. Please access Advantech's Web site to download the required computer file and then follow the instructions.

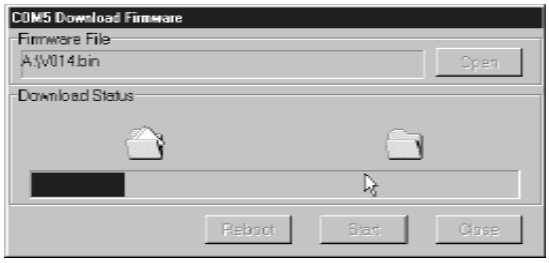
Configuration utility- High security



Port Mapping utility- Manage all ports


Port Mapping Utility for ADAM 4570
Exit Help
Ports on My Computer
Used Ports
Unused Ports
ADAM 4570 Ports
Memo
These ports have already been used by the system. Therefore, you can not assign them to ADAM4570 port.
Exit

Port Mapping utility- Download firmware



Ordering Information

- **ADAM-4571**
  1-port Ethernet to RS-232/422/485 Data Gateway (RJ48 to DB9 cable, 1 m)
- **ADAM-4570**
  2-port Ethernet to RS-232/422/485 Data Gateway (RJ48 to DB9 cable, 1 m)
- **Opt1A**
  30 cm RJ48 to male RS-232/422/485 cable

ADAM-4570S
ADAM-4571S

2-port Ethernet to RS-422/485 Data Gateway w/Security

1-port Ethernet to RS-422/485 Data Gateway w/Security

Features

- Supports 10/100 Mbps Base-T standard
- Provides Host/Device Idle protection & auto-reconnect function to enhance the reliability of system.
- Supports multiple advanced security protections: Triple DES, IP address control
- Transmission speed up to 230 Kbps
- Auto-reconnect or return error when Network breaks
- Remote download firmware: Easy to maintain
- Auto-detecting Configuration Utility
- Easy managing Port Mapping Utility
- Supports Windows® 95/98/NT/2000/XP/ME driver
- Automatic RS-485 data flow control
- Provides 3000 V_{DC} isolation

Introduction

The ADAM-4570S/4571S is an advanced security data gateway that works between RS-422/485 and Ethernet interfaces. It not only upgrades your existing RS-422/485 devices to Ethernet, but also provides a quick and safe way to transmit important data via Ethernet. The ADAM-4570S/4571S is specially designed for highly-secured data transmission for remotely controlling and monitoring mission critical application environments.

Advanced security features

Advanced multiple security features protect the system and make data more private and secure. The ADAM-4570S/4571S guards your system and data in several ways: T-DES (Triple Data Encryption Standard); IP address control and configuration. By using T-DES, you can key-in passwords to secure your data. The data cannot be sent to the specific host PC unless the PC and the passwoed protected ADAM-4570S/4571S have the correct password. This prevents important data from being viewed by an unauthorized user. IP address control can block access to a specific ADAM-4570; it restricts the access right of up to 32 PCs at a time. In addition to these features, the ADAM-4570S/4571S also protects all configuration settings from being changed inadvertently. When this option is enabled, only the corresponding PC can set the configuration. These functions were all designed with data protection and security in mind as well as overall system reliability.

Host/Device Idle Protection empowers the reliability of system (ADAM-4570S)

For improving the stability of systems, users usually have to spend lots of effort to build up “Redundant” functionality. Now, the ADAM-4570S provides new powerful functions that help users build up redundant systems fast and easily. The new functions are Host idle & Device idle. The purpose of the “Host idle switch” function is to prevent system hang-up from occurring due to application program failure. If the application program fails, the ADAM-4570S will cut off the connection between the host PC and the ADAM-4570S. Another PC can then start to access the same ADAM-4570S. Also, if the serial device or communication between the device and the ADAM-4570S fails, the “Device Idle” function will switch the communication port from one port to another port to keep communicating with another device automatically. Thus, another device can send data to the ADAM-4570S.

Auto-reconnect after networking breaks

Sometimes, the system crashes because the ADAM-4570S/4571S is interrupted or powered-off by accident. The ADAM-4570S/4571S provides an “Auto-reconnect” function to solve this problem. When the ADAM-4570S/4571S is powered-off accidentally, the driver will keep trying to reconnect the ADAM-4570S/4571S automatically. When the ADAM-4570S/4571S recovers or is powered-on, due to this auto-reconnect function, the host PC can send commands to the ADAM-4570S/4571S again. This function enhances the reliability of the system.

Specifications

- **Protocol:** TCP/IP,
- **Network:** 10/100 BASE-T standard
- **Port:** 1/2 Independent RS-422/485 ports
- **Connector:**
  Network: RJ-45
  Serial: RJ-48 (RJ-48 to DB-9 cable provided)
- **Security:** T-DES (FIPS PUB 46-2), IP address control
- **Data Protection type:** Host idle; device idle, auto-reconnect
- **Transmission speed:** 300 bps to 230 Kbps
- **Isolation:** 3000 V_{DC}
- **Parity bit:** odd, even, none, space, mark
- **Data bit:** 5, 6, 7, 8
- **Stop bit:** 1, 1.5, 2
- **Diagnostic LEDs:**
  Network: Tx/Rx, Link , Speed (10/100 Mbps), Power
  Serial: Tx/Rx, Status
- **Driver Supported:** Windows 95/98/NT/2000/XP
- **Power Requirements:** unregulated 10 to 30 V DC
- **Power Consumption:** 2 Watt (ADAM-4571S);
  4 watt (ADAM-4570S)
- **Mounting:** DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** 0 to 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 to 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

Ordering Information

- ❑ **ADAM-4571S**
  1-port Ethernet to RS-422/485 Data Gateway w/Security
  (RJ48 to DB9 cable, 1 m)
- ❑ **ADAM-4570S**
  2-port Ethernet to RS-422/485 Data Gateway w/Security
  (RJ48 to DB9 cable, 1 m)
- ❑ **Opt1A**
  30 cm RJ48 to male RS-422/485/422/485 cable

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ADAM-4570L
ADAM-4571L

2-port Ethernet to RS-232 Data Gateway

1-port Ethernet to RS-232 Data Gateway

NEW

Features

- Supports 10/100 Mbps Base-T standard
- Supports high transmission speeds up to 230 Kbps
- Supports an advanced security mechanism to avoid unauthorized access
- Auto-reconnect when Network breaks
- Remote download firmware: Easy to maintain
- Auto-detecting Configuration Utility
- Easy managing Port Mapping Utility
- Supports Windows® 95/98/NT/2000/XP/ME driver

Introduction

The ADAM-4570L/4571L is a cost-effective data gateway between RS-232 and Ethernet interfaces. It provides a quick and low-cost way to connect any RS-232 device into Ethernet. Functionally transparent and efficient, the ADAM-4570L/4571L makes the users save a lot of cost by allowing the use of existing H/W & S/W. The ADAM-4570L/4571L brings the advantages of remote management and data accessibility to thousands of RS-232 devices that cannot connect to the network.

The ADAM-4570L/4571L provides one or two RS-232 serial ports. The transmission speed of the ADAM-4570L/4571L is up to 230 Kbps, meeting the demands for high-speed exchange. In addition, users can use Windows® utilities to configure the ADAM-4570L/4571L without further programming. The ADAM-4570L/4571L not only protects your current hardware investment but also ensures future network expandability. Since the protocol conversion is transparent, all your existing devices can be seamlessly integrated with an Ethernet network.Therefore, the ADAM-4570L/4571L can be used in a security system, factory automation, SCADA, transportation and more.

The ADAM-4570L/4571L integrates both your existing human-machine interface software (HMI) and the RS-232 system architecture with an Ethernet network. The result helps you save cabling space and software development cost. Another benefit is the ADAM-4570L/4571L allows users to remotely download programs to a designated device via Ethernet. This reduces the need for on-site maintenance and diagnosis.

In addition, the ADAM-4570L/4571L comes with a Windows® configuration and port-mapping utility. The configuration tool can auto-detect all Ethernet Data Gateway products on the local network. It also lets you adjust all settings easily. The port mapping utility helps you to set up COM ports for one Windows® 95/98/NT/2000/XP platform. This helps users manage all ports to meet their needs.

Specifications

- **Protocol**: TCP/IP,
- **Network:** 10/100Base-T standard
- **Port:** 1/2 Independent RS-232 ports
- **Connector:**
  Network: RJ-45
  Serial: RJ-48 (ADAM-4570L)
  DB-9 (ADAM-4571L)
- **Transmission speed:** 300 bps to 230 Kbps
- **Parity bit:** odd, even, none, space, mark
- **Data bit:** 5, 6, 7, 8
- **Stop bit:** 1, 1.5, 2
- **Diagnostic LEDs:**
  Network: Tx/Rx, Link , Speed (10/100 Mbps), Power
  Serial: Tx/Rx, Status
- **Utility Software:**
  Auto-detecting configuration utility
  Easy-to-manage port mapping utility
- **Driver Supported:** Windows® 95/98/NT/2000/XP
- **Power Requirements:** unregulated 10 to 30 V_{DC}
- **Power Consumption:**
  3 watt (ADAM-4570L)
  2 watt (ADAM-4571L)
  Placement: DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** 0 to 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 to 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

Ordering Information

- **ADAM-4571L**
  1-port Ethernet to RS-232 Data Gateway
- **ADAM-4570L**
  2-port Ethernet to RS-232 Data Gateway
  (RJ48 to DB9 cable, 1 m)
- **Opt1A**
  30 cm RJ48 to male RS-232/422/485 cable

EDG-4504
EDG-4508
EDG-4516

4-port Ethernet to RS-232/422/485 Data Gateway
8-port Ethernet to RS-232 Data Gateway
16-port Ethernet to RS-232 Data Gateway

Features

- Windows native COM port compatible-existing applications can access EDG-4508/4516's COM ports
- Automatic connection recovery to network
- Standard 19-inch rack-mountable design for industrial applications
- Auto-detects 10/100 Mbps Ethernet interface
- RS-232 devices can be shared by multiple hosts
- Supports an advanced security mechanism to avoid unauthorized access
- Tx/Rx LEDs for all ports to monitor data transmission
- Convenient and simple installation wizard
- Simple setup and configuration with a user-friendly GUI-no host reboot required

Introduction

EDG-4504/4508/4516 is an industrial-strength network-based serial device server for connecting 4 RS-232/422/485 devices (EDG-4504) 8/16 RS-232 devices (EDG-4508/4516), such as CNCs, PLCs, scales, and scanners, directly to a TCP/IP network (Ethernet or Internet). Compared to similar devices on the market, it has the lowest cost, best performance, and most advanced features.

Both 10 Mbps and 100 Mbps Ethernet connections are supported, providing higher bandwidth, lower traffic impact, and more layout flexibility.

EDG-4504/4508/4516 has a professional cabin design, with Tx/Rx LEDs for all ports on the front panel, and all of the 4 DB9 and 8/16 RJ45 phone jack connectors. This makes EDG Series suitable for multi-task environment, and simplifies its operation, maintenance, and administration.

Applications

- Industrial/Factory automation
- SCADA systems
- Telecommunications
- Automatic warehouse control
- Building automation
- Wafer fabrication systems
- Self-service banking systems
- Large scale retail systems

Specifications

Hardware

- **I/O controller**: 16C654 or compatible (auto hardware flow control)
- **Memory**: 1 MB (8 ports), 2 MB (16 ports), 4 MB (4 ports)
- **Connector type**: DB9 (EDG-4504)
  RJ45 (EDG-4508/4516)

Interface

- **LAN** : 100Base-TX (10/100 Mbps)
- **Serial**: RS-232/422/485 (EDG-4504), RS-232 (EDG-4508/4516)
- **Signals**: TxD, RxD, RTS, CTS, DTR, DSR, DCD, GND

Performance

- **Speed**: 50 - 230.4 Kbps
- **Max. No. of ports**: 256 (per Windows NT)

Configuration

- **Parity**: None, even, odd, space, mask
- **Data bits**: 5, 6, 7, 8
- **Stop bits**: 1, 1.5, 2

OS supported

- **EDG-4504**: Windows NT 4.0 & Windows 2000
- **EDG-4508/4516**: Windows NT, UnixWare SVR4.2, Unix Ware7 SVR5, SCO Open Server, SCO UNIX, Linux 2.2.x (Intel x86) (running TCP/IP)

Power and Environment

- **Power requirements**:
  90 V ~ 260 V, 47 ~ 63 Hz, 60 W (EDG-4508/4516)
  +10 ~ +30 V_{DC} (EDG-4504)
- **Operating temp.**: 0 ~ 55° C (32° ~ 131° F)
- **Surge Protection**: 15,000 V_{ESD}

Ordering Information

- ❑ **EDG-4504**
  4-port Ethernet to RS-232/422/485 Data Gateway
- ❑ **EDG-4508**
  8-port Ethernet to RS-232 Data Gateway
- ❑ **EDG-4516**
  16-port Ethernet to RS-232 Data Gateway

Optional Accessories

- ❑ **Opt1A**
  100 cm RJ45 to male DB9 RS-232/422/485 cable (EDG-4504 only)
- ❑ **Opt1B**
  150 cm RJ45 to female DB25 RS-232 (DCE) cable (EDG-4508/4516 only)
- ❑ **Opt1C**
  150 cm RJ45 to male DB25 RS-232 (DTE) cable (EDG-4508/4516 only)

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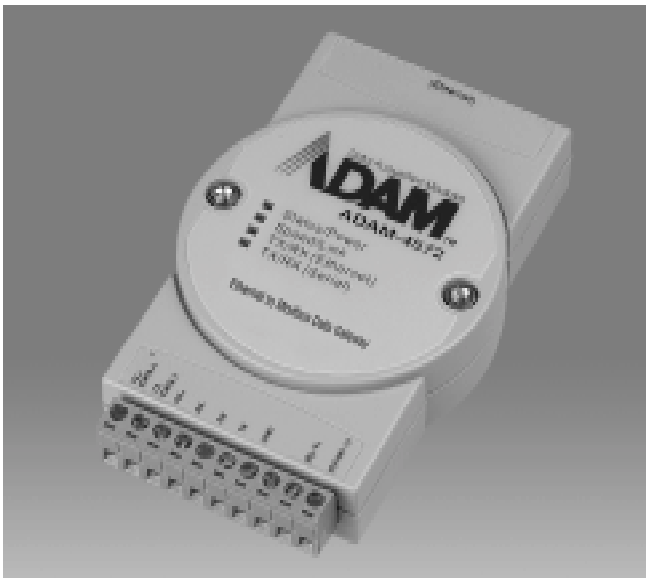
ADAM-4572

Ethernet to Modbus Data Gateway



Features:

- Supports 10/100Mbps communication speeds
- Plug & Play design without extra configuration effort
- Allows up to 8 clients to access field data simultaneously
- Supports popular HMI software with Modbus/TCP driver or OPC server
- OS, hardware platform independent
- Up to 3 Independent serial ports capacity if configure to RS-485 serial mode
- Provides auto-searching device ID Windows utility
- RISC CPU and real-time embedded OS
- Surge protection for RS-485 and power line
- Automatic RS-485 data flow control
- Easy mounting on DIN-rail , panel piggyback
- Support Modbus/ASCII, RTU Protocol to control devices

Introduction

To be a Modbus Data Gateway, ADAM-4572 serves as an interface between Modbus serial devices and computer hosts running Modbus/TCP on Ethernet. Fully compliant with Modbus/TCP, it is ideal for customers who are looking for an easy way to connect their existing devices or controllers running Modbus serial protocols (Modbus/ASCII or Modbus/RTU) to Ethernet network. It functions as a bridge between Modbus serial devices or controllers over TCP/IP Ethernet. Benefits are also abundant for customers who want to expand their Ethernet-based Modbus (Modbus/TCP) application.

Networks have become increasingly vital for industrial automation applications. Many control devices today do not have a network port and can only communicate with a dedicated local PC or control panel. Advantech's revolutionary network-enabling technology is now allowing control devices with serial ports to connect to the Ethernet and share networks quickly and cost-effectively. The ADAM-4572 Ethernet to Modbus Data Gateway is a new product of ADAM Data Gateway series from Advantech that allows users to integrate new and existing Modbus/RTU and Modbus/ASCII serial devices to newer TCP/IP network-based devices. Manufacturers, system integrators, and end users can now take the advantages of ADAM-4572 to create networked applications to remote managing and accessing data to their control devices that were never before possible.

With ADAM-4572 as a bi-directional communication data gateway between Ethernet and Modbus network, it is very easy to integrate both heterogeneous networks within your factory. The ADAM-4572 provides features such as 10/100 Mbps data rate for Ethernet/Fast Ethernet connection, serial port speed up to 115.2 Kbps, auto-searching device, Modbus RTU, Modbus/ASCII, Modbus/TCP protocol, diagnostic LEDs, RJ-45 connectors and surge protection on network. With these merits for a true communication Data Gateway between Ethernet and Modbus, the ADAM-4572 can be your best choice to integrate Ethernet and Modbus network within your factory for better network integration and resource sharing.

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Specifications

- **Protocol:**
  Ethernet: Modbus/TCP
  Serial: Modbus/RTU, Modbus/ASCII,
- **Network Port:** 10BASE-T IEEE 802.3, 100BASE-TX IEEE 802.3u RJ-45 connector
- **Serial Port:** RS-232/485/422
  IO plug-in connector
  Transmission speed: 300 bps to 115.2 kbps
  Parity: odd, even, none
  Data bit: 7, 8
  Stop bit: 1, 2
- **Compatibility:** Ethernet: version 2.0/IEEE 802.3, IEEE 802.3u
  Modbus/Serial: Modbus/ASCII, Modbus/ RTU
  Network: Modbus/TCP
- **Diagnostic LEDs:** Network: Tx/Rx, Link, Speed (10/100Mbps), Power
  Serial: Status, Tx/Rx
- **Utility Software:** Windows-based, device auto-searching
  Device Setting: name, description, serial port
- **Compatible with application software running on Modbus/TCP standard**
- **Power Requirements:** unregulated 10 to 30 Vdc with protection from power surge
- **Power Consumption:** 3 watt
- **Case:** ABS with captive mounting hardware
- **Accessories:** Nylon DIN-rail mounting adapter SECC panel mounting bracket
- **Operating Temperature:** 0 to 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 to 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

Ordering Information

❑ **ADAM-4572**	Ethernet to Modbus Data Gateway

ADAM-4577
ADAM-4579

1-port Universal Serial Device Gateway

2-port Universal Serial Device Gateway

Features

- Supports 10/100 Base-T (ADAM-4579); 10 Base-T (ADAM-4577) Ethernet standard
- Supports standard networking API: WinSock, Socket
- Provides multiple networking architectures: polling, event handling, peer-to-peer, and controlling (ADAM-4579)
- Supports several AT-style commands to control ADAM-4579
- Supports any operating system with TCP/IP protocol: Windows, Linux etc.
- Auto-searching Windows configuration utility: Easy setting and security protection
- Download and testing utility: Easy to download firmware and self-diagnostic
- Easy to locate specific EDG series
- Surge protection for RS-485 line and power supply
- Mounts on DIN rail, panel or piggyback easily
- Allows most 8 host PC to access in UDP Protocol (ADAM-4577)

Introduction

The ADAM-4577/ADAM-4579 are an universal serial device gateway to bring RS-232/422/485 to Ethernet. It allows nearly any device with serial ports to connect to the Ethernet and share networks quickly. The ADAM-4577/ADAM-4579 provides a quick, simple and cost-effective way to bring the advantages of remote management and data accessibility to thousands of devices that cannot connect to the network.

With the ADAM-4577/ADAM-4579, your existing serial devices can be used in the most popular operating systems. There is no need to write special drivers for specific operating system. Moreover, the ADAM-4577/ADAM-4579 allows the serial device to communicate with other devices peer-to-peer, without any intermediate host PCs. That saves a lot of cost and effort. In addition, you can actively request data or issue commands from the RS-232/422/485 side or Ethernet side. The data can be sent bilaterally. Thus, the ADAM-4577/ADAM-4579 is especially suitable for remote monitoring environments such as security systems, factory automaton, SCADA, transportation and more.

The ADAM-4577/ADAM-4579 also features powerful functions such as: high-speed data transfer, advanced security protection, auto-detection of all network-linked EDG series products, remote firmware download and more. The transmission speed of the ADAM-4577/ADAM-4579 is up to 230 Kbps, outperforming the competition to meet the demands for high-speed exchange. The ADAM-4577/ADAM-4579 also provides a security option that protects all configuration settings from being changed inadvertently, and blocks access to a specified ADAM-4577/ADAM-4579. The above functions are offered to enhance network security and reduce system malfunction due to unauthorized changes made to the system. Another benefit is the ADAM-4577/ADAM-4579 allows users to remotely download programs to a designated device via the Ethernet. This reduces the need for on-site maintenance and diagnostics.

For fulfilling the different applications that connect to networks, the ADAM-4577 provides 4 types of network architectures: Polling, Event-handling, peer-to-peer, multi-host access (UDP protocol); and the ADAM-4579 provides 4 types of network architectures: Polling, Event-handling, peer-to-peer, and Controlling.

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Compliant with any operating system

In the polling mode, the specific host PC can request the serial devices, which are connected to the ADAM-4577/ADAM-4579, to send data via Ethernet. All the data will be gathered in host PCs. In addition, the ADAM-4577/ADAM-4579 supports standard networking application-programming interfaces (API) such as WinSock and Socket, making the ADAM-4577/ADAM-4579 a popular item in most operating systems such as Windows, Linux etc.

Actively event /alarm handle

In the event-handling mode, if an event or alarm occurs from serial devices, it will be immediately sent to the designated device via Ethernet. Thus, it can reduce the load of the host PC and increase the performance of the Ethernet.

Peer-to-peer transmission of data without intermediate PC

In peer-to-peer mode, data can be sent/received between two networking devices directly without intermediate PCs. Users can add two ADAM-4577/ADAM-4579's on both serial sides and transmit data from one serial device to another via Ethernet. Serial devices don't need to be bundled with PCs. To increase the performance of whole systems, the data can be sent to the devices that urgently need it.

Dynamically build up the connection from device to device (ADAM-4579 only)

In controlling mode, the ADAM-4579 acts as a modem to the attached serial device. It provides several modem AT-style commands in order for serial devices to connect to different networking devices dynamically. This saves a lot of programming effort and increases the performance for data exchange.

Multi-host access (UDP protocol)

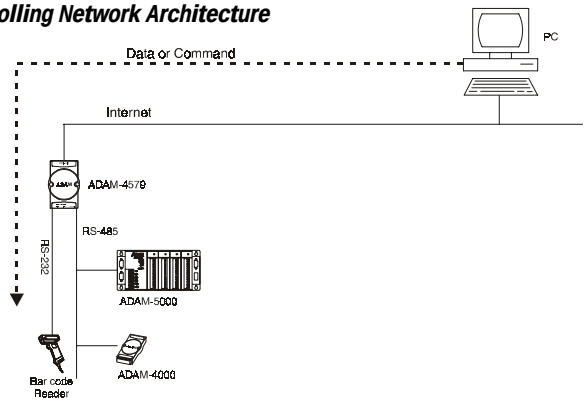
ADAM-4577 supports UDP protocol, it allows most 8 host PC accessing data simultan eously. Via polling networking architecture. You can use it according to your application.

Specifications

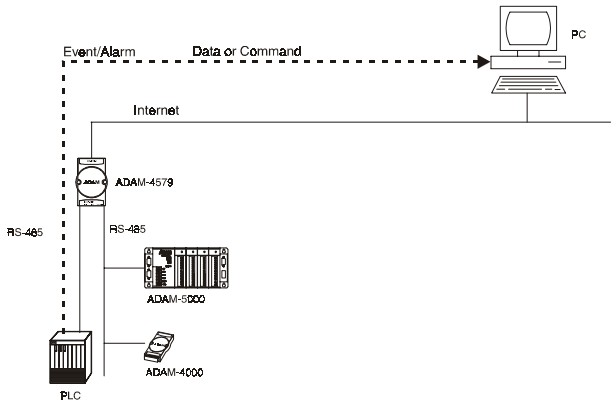
- **Protocol:** TCP/IP (ADAM-4579)
  TCP/IP, UDP (ADAM-4577)
- **Standard networking API:** WinSock, Socket
- **Network type:**
  ADAM-4577: Polling, event handling, peer-to-peer, multi-host access
  ADAM-4579: Polling, event handling, peer-to-peer, controlling
- **Network Port:** IEEE 802.3, IEEE 802.3u
- **Interface:**
  Network: 10Base-T (ADAM-4577); 10/100Base-T (ADAM-4579)
  Serial: 3-wire RS-232, RS-422, RS-485
- **Port:**
  ADAM-4577: 1 independent RS-232/422/485 port
  ADAM-4579: 2 independent RS-232/422/485 ports
- **Connector:**
  Network: RJ-45
  Serial: ADAM-4577: DB-9
  ADAM-4579: RJ-48 (RJ-48 to DB-9 cable provided)
- **Transmission speed:** 300 bps to 230 Kbps
- **Parity bit:** odd, even, none, space, mark
- **Data bit:** 5, 6, 7, and 8
- **Stop bit:** 1, 1.5, and 2
- **Diagnostic LEDs:**
  Network: TX/RX, Link, Speed (10/100 Mbps), Power
  Serial: TX/RX, Status
- **Utility Software:**
  Auto-detecting configuration utility
  Easy-to-diagnose download & testing utility
  UDP testing utility (ADAM-4577)
- **Power Requirements:** unregulated 10 to 30 Vdc with surge protection
- **Power Consumption:** 2 Watt (ADAM-4577); 4 Watt (ADAM-4579)
- **Placement:** DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** 0 ~ 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 ~ 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 ~ 95% (non-condensing)
- **Storage Humidity:** 0 ~ 95% (non-condensing)

Network Architectures

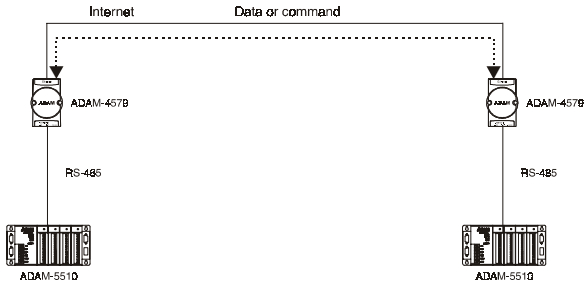
Polling Network Architecture



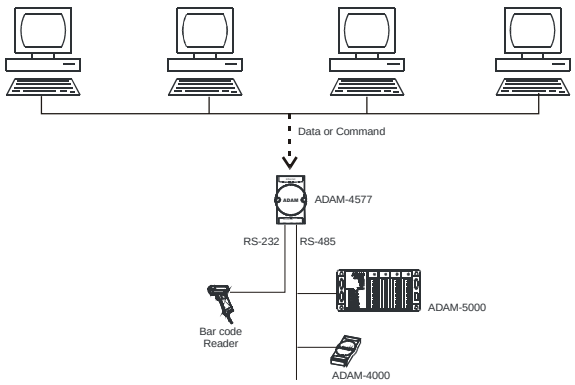
Event-handling Network Architecture



Peer-to-peer Network Architecture



Multi-host access (UDP Protocol)

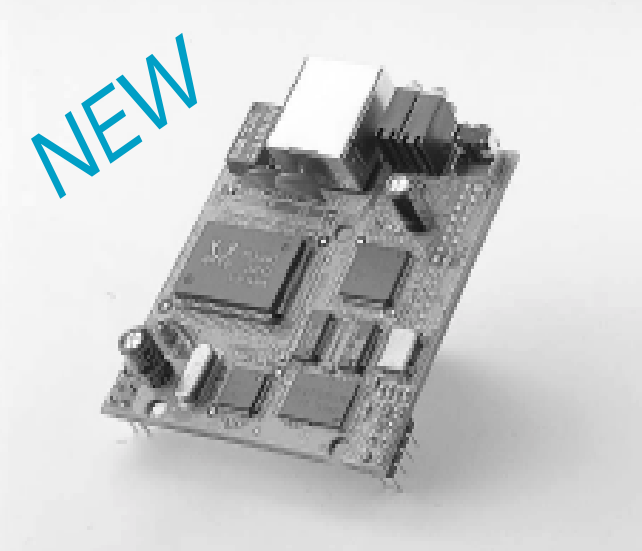


Ordering information

- ❑ **ADAM-4577**
  1-port universal serial device gateway
- ❑ **ADAM-4579**
  2-port universal serial device gateway
  (RJ-48 to DB9 cable, 1 m)
- ❑ **Opt1A (ADAM-4579 only)**
  RJ-48 to male RS-232/422/485 male cable, 1 m

EDG-4100

1-port Universal Ethernet to RS-232/422/485 Data Gateway module



Features:

- Provides RS-232/422/485 interfaces
- Supports TCP/IP, UDP protocol
- Provides 8 universal digital input/output for emergent ON/OFF control
- Easy configuration via utility and standard Internet Browser
- 4 K memory bank for machine vendor specific information
- Easy to mount through backside PIN connectors
- Embedded http sever

Introduction

The EDG-4100 is a fast and cost-effective networking-enabled board module. It enables nearly any device to communicate over the Internet and shared networks, and it allows those devices to be remotely monitored, managed, and controlled. Functionally transparent and efficient, the EDG-4100 provides complete software and hardware for users. The EDG-4100 eliminates the need for OEMs and systems integrators to invest engineering resources to develop similar networking solutions, and reduces the time it takes to bring intelligent devices to market. Thus, the EDG-4100 is especially suitable for remote management and data accessibility to thousands of devices that cannot connect to the network such as factory machinery, security systems, heating and ventilation systems, lighting control systems and Point-of-Sale device.

The EDG-4100 is a 54 mm x 59 mm Web/Ethernet-enabled board. It can easily fit into almost any device. The EDG-4100 provides pin headers to connect the LAN, DI/O, power and RS-232/422/485 into customer's boards. It is quick and cost-effective for users to connect the system to the Internet. Besides fulfilling the needs Internet, the EDG-4100 provides three networks: Web, Master-Slave, and Peer-to-Peer networks. The EDG-4100 also provides 8 DI/O for customer use, which provides additional flexibility and saves extra cost. Moreover, users can monitor/control their machine in the browser, and acquire instant information from any device and location.

The EDG-4100 replaces expensive dedicated PCs or lengthy serial cables with fast and reliable networking technology, and brings several new features and enhancements to the embedded product line:

Specifications

- **Protocol:** TCP/IP, UDP
- **Standard API:** Win32, WinSock, Socket
- **Compatibility:** IEEE 802.3, IEEE 802.3u
- **Interface:**
  Network: 10Base-T standard (100Base-T by Request)
  Serial: RS-232, RS-422, RS-485
- **Port:** 1 Independent RS-232/422/485 ports
- **Connector:**
  Network: RJ-45 or 4 pin header
  Serial: 8 pin header
- **Network type:** master-slave, peer-to-peer
- **DI/O:** Universal digital input/output
- **Transmission speed:** 300 bps to 921.6 Kbps
- **Parity bit:** odd, even, none, space, mark
- **Data bit:** 5, 6, 7, 8
- **Stop bit:** 1, 1.5, 2
- **Signals:** Full Modem control signals (Don't support RAS service)
- **Diagnostic LEDs:**
  Network: Tx/Rx, Link , Speed (10/100 Mbps), Power
  Serial: Tx/Rx, Status
- **Surge protection:** 15 K V_{ESD} (RS-232/422/485)
- **Utility Software:**
  Auto-detecting configuration utility
  Easy-to-manage port mapping utility
- **Driver Supported:**
  Windows® 95/98/NT/2000/XP
- **Power Requirements:** unregulated 10 to 30 V DC with protection from power surge
- **Power Consumption:** 4 watt
- **Case:** ABS with captive mounting hardware
- **Mounting:** DIN-rail, panel mounting, piggyback stack
- **Operating Temperature:** 0 to 60° C (32° ~ 140° F)
- **Storage Temperature:** -20 to 80° C (-4° ~ 176° F)
- **Operating Humidity:** 20 to 95% (non-condensing)
- **Storage Humidity:** 0 to 95% (non-condensing)

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Ordering Information

❑ **EDG-4100**
1-port Universal to RS-232/422/485 Ethernet Data Gateway Module

Datasheet Download & Buy online Address: www.advantech.com/products/EDG-4100.asp Enter